

BETA-PHASE NICKEL ALUMINIDE COATING

Abstract

A protective overlay coating for articles used in hostile thermal environments, and more particularly a predominantly beta-phase NiAl intermetallic overlay coating for use as an environmental coating or as a bond coat for a thermal barrier coating deposited on the overlay coating. The overlay coating has inner and outer regions, with the inner region containing more chromium than the outer region. The lower chromium content of the outer region promotes the oxidation resistance of the overlay coating, while the higher chromium content of the inner region promotes the hot corrosion resistance of the coating interior. Under hot corrosion conditions, hot corrosion may attack the outer region, but further hot corrosion attack will substantially cease once the relatively high-chromium inner region of the overlay coating is encountered.